Amendments to the Claims

A complete set of the existing claims are set forth below, with the amended claims showing deletions (~~strike through~~) and insertions (<u>underline</u>).

1. (Original) In an apparatus, a method of operation comprising:

in response to an AC failure condition of the apparatus, supplying power from a backup power source to the apparatus for at least a time period;

additionally initiating a suspend process to place the apparatus in a suspended to memory state, to be sustained by the supplied backup power; and

intervening and preserving a persistent copy of an operational state of the apparatus, before completing the suspend process and placing the apparatus in the suspended to memory state, sustained by the supplied backup power.

2. (Original) The method of claim 1, wherein the suspend process is initiated by an operating system (OS) of the apparatus, and comprises the OS instructing a controller of the apparatus to shut off delivery of normal power within the apparatus, leaving only delivery of standby power within the apparatus.

3. (Original) The method of claim 2, wherein

the OS instructing comprises the OS attempting to write to a register of the controller; and

the intervening comprises the controller in response to the OS attempted write, causing a basic input/output system (BIOS) to perform the preservation of the operational state of the apparatus.

4.   (Original) The method of claim 1, wherein
the intervening comprises transferring control to an input/output system (BIOS) of the apparatus; and
the preserving comprises the BIOS saving the operational state of the apparatus to a persistent storage.

5.   (Original) The method of claim 1, wherein the method further comprises receiving an interruption interrupting the preserving of the persistent copy, in response, aborting the preserving, and completing the suspend process, placing the apparatus in the suspended to memory state, sustained by the supplied backup power.

6.   (Original) The method of claim 1, wherein the method further comprises monitoring for absence of AC to a power supply of the apparatus; and
generating a signal indicating AC failure on detection of absence of AC to the power supply.

7.   (Original) The method of claim 6, wherein the monitoring and generating are performed by the power supply.

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8.   (Original) In an apparatus, a method of operation comprising:

maintaining the apparatus in a suspended to memory state, employing a backup power source, while the apparatus is in an AC failed condition, resulting in a memory of the apparatus having a suspended operational state of the apparatus;

monitoring for re-application of AC to the apparatus while the apparatus is in the suspended to memory state maintained by the backup power source; and

resuming the apparatus to an active state on re-application of AC to the apparatus, where the apparatus continues operation, starting from the operational state previously suspended in the memory.

9.   (Original) The method of claim 8, wherein

the method further comprises signaling a controller of the apparatus on re-application of AC to the apparatus while the apparatus is in the suspended to memory state;

handling the signaling by the controller as a device wake event, causing a basic input/output system (BIOS) of the apparatus to gain control; and

the BIOS initiating a resume process, and transferring control to an operating system (OS) of the apparatus to complete the resume process, transition the apparatus from the suspended to memory state to the active state, and continue operation of the apparatus, starting from the previous suspended operational state in memory.

10.   (Original) The method of claim 9, wherein the signaling of the controller is performed by a power supply of the apparatus.

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11.   (Original) In an apparatus, a method of operation comprising:

commencing a cold start reset process on re-application of AC power to the apparatus while the apparatus is in an un-powered state;

determining as part of the cold start reset process, whether a persistent storage of the apparatus comprises a saved operational state of the apparatus;

restoring the saved operational state of the apparatus from the persistent storage to a memory of the apparatus, if the persistent storage is determined to have a saved operational state of the apparatus; and

continuing the cold start reset process as a resume process to allow the apparatus to start operation in an active state, continuing from the restored operational state of the apparatus.

12.   (Original) The method of claim 11, wherein

the determining and restoring are performed by a basic input/output system (BIOS) of the apparatus; and

the continuing of the cold start reset process as a resume process comprises the BIOS transferring control to an operating system (OS) of the apparatus to complete the resume process and operate the apparatus in the active state, starting from the restored operational state in memory.

13. (Original) The method of claim 11, wherein the method further comprises continuing with the cold start reset process, upon determining the persistent storage not comprising a saved operational state of the apparatus.

14. (Original) A system comprising:

a memory to store at least a current operational state of the system;

a persistent storage;

a basic I/O system (BIOS) operatively coupled the memory and the persistent storage, to intervene and save a persistent copy of the operational state of the system in the persistent storage, when a suspend process is initiated by an operating system (OS) to place the system in the suspended to memory state; and

a controller operatively coupled to the OS to cause the OS to initiate the suspend process to place the system in the suspended to memory state, when the system is in an AC failed condition.

15. (Original) The system of claim 14, wherein

the system further comprises a processor and the OS; and

the controller comprises a register to which the OS writes to initiate the suspend process to place the system in the suspended to memory state, and the controller is equipped to cause the BIOS to gain control, to enable the BIOS to intervene, in response to an attempted write to the register by the OS.

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16. (Original) The system of claim 14, wherein the system further comprises a power supply coupled to at least the controller, to monitor for presence of AC, and generate a signal indicating AC failure on detection of absence of AC.

17. (Original) The system of claim 14, wherein the system further comprises a power supply including a backup power source, coupled to the memory, to source power to the memory to sustain the suspended to memory state for at least a time period during the AC failed condition.

18. (Original) The system of claim 14, wherein the controller is equipped to cause the OS to initiate the suspend process to place the system in the suspended to memory state, when the system is in an AC failed condition, by way of an interrupt when the system is in an active state.

19. (Original) The system of claim 14, wherein the controller is equipped to cause the OS to initiate the suspend process to place the system in the suspended to memory state, when the system is in an AC failed condition, by waking the system when the system is in a suspended to memory state.

20. (Original) The system of claim 14, wherein the system further comprises a networking interface operatively coupled to the BIOS.

21. (Original) A system comprising:

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a memory to store an operational state of the system;

a power supply coupled to the memory, including a backup power source to sustain the memory for at least a time period, while the system is suspended to memory under an AC failure condition;

a basic input/output system (BIOS) operatively coupled to an operating system (OS), and equipped to initiate a resume process and transfer to the OS to continue and complete the resume process, and place the system in an active state, where the system continues operation, starting from the previously suspended operational state of the system in memory; and

a controller operatively coupled to the BIOS to cause the BIOS to initiate the resume process on re-application of AC to the system.

22.   (Original) The system of claim 21, wherein

the power supply is further equipped to signal the controller on re-application of AC to the system;

the controller is equipped to handle the signaling as a device wake event, causing BIOS to gain control; and

the BIOS is equipped to initiate the resume process, upon gaining control.

23.   (Original) The system of claim 21, wherein the system further comprises the OS, and a networking interface operatively coupled to the BIOS.

24.   (Original) A system comprising:

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a memory;

a persistent storage to store at least a saved operational state of the system; and

a basic I/O system (BIOS) operationally coupled to the memory and the persistent storage to determine, as part of a cold start reset process commenced in response to re-application of AC power to the system while the system is in an un-powered state, whether the persistent storage comprises a saved operational state of the system, and to restore the saved operational state of the system from the persistent storage to the memory upon determining existence of the saved operational state of the system in the persistent storage.

25. (Original) The system of claim 24, wherein the BIOS is further equipped to continue the cold start reset process as a resume process, on determining and restoring the saved operational state of the system from the persistent storage to the memory, to transition the system from the un-powered state to an active state, where the system continues operation, starting from the restored operational state.

26. (Original) The system of claim 25, wherein

the system further comprises an operating system; and

the BIOS is further designed to transfer control to the operating system to continue and complete the resume process, and resume operating the system at the active state, starting from the restored operating state of the system.

27.　(Original) The system of claim 24, wherein the BIOS is further designed to continue the cold start reset process, upon determining the persistent storage not comprising a saved operational state of the system.

28.　(Original) An article of manufacture comprising:

a storage medium; and

a plurality of programming instructions stored therein, designed to enable an apparatus to be able to intervene and save a persistent copy of an operational state of the apparatus, before allowing a suspend process initiated in response to an AC failure condition of the apparatus to place the apparatus in a suspended to memory state to complete.

29.　(Original) The article of claim 28, wherein the programming instructions are designed to perform the intervening and saving of the persistent copy as a basic input/output system (BIOS), to be given control whenever the suspend process is initiated.

30.　(Original) An article of manufacture comprising:

a storage medium;

a plurality of programming instructions stored therein, designed to enable an apparatus to

determine as part of a cold start reset process of the apparatus initiated in response to re-application of AC to the apparatus while the apparatus is in an un-

powered state, whether a persistent storage of the apparatus comprises a saved operational state of the apparatus,

restore the saved operational state of the apparatus from the persistent storage to a memory of the apparatus; and

causing the cold start reset process to be completed as a resume process to resume operation of the apparatus in an active state, starting from the restored operational state.

31.   (Original) The article of claim 30, wherein the programming instructions are further designed to enable the apparatus to continue and complete the cold start and reset process, after the persistent storage is determined not to comprise a saved operational state of the apparatus.

32.   (Original) In an apparatus, a method of operation comprising:

initiating a suspend process to place the apparatus in a suspended to memory state due to a reason other than an AC failure condition of the apparatus;

intervening and preserving a persistent copy of an operational state of the apparatus;

signaling an AC failure condition of the apparatus;

supplying power from a backup power source to the apparatus for at least a time period;

completing the preserving of the persistent copy of the operational state of the apparatus;

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completing the suspend process and placing the apparatus in the suspended to memory state, sustained by the supplied backup power; and

immediately waking the apparatus to respond to the AC failure condition.

33.   (Original) The method of claim 32, wherein the method further comprises initiating a resume process to resume the apparatus from the operational state suspended in memory, initiating another suspend process, and intervening and preserving another persistent copy of an operational state of the apparatus, before completing said another suspend process and placing the apparatus in the suspended to memory state again, sustained by the supplied backup power.

34.   (Original) In an apparatus, a method of operation comprising:

initiating a suspend process to place the apparatus in a suspended to memory state due to a reason other than an AC failure condition of the apparatus;

intervening and preserving a persistent copy of an operational state of the apparatus;

completing the suspend process and placing the apparatus in the suspended to memory state;

signaling an AC failure condition of the apparatus;

supplying power from a backup power source to the apparatus for at least a time period; and

waking the apparatus to respond to the AC failure condition.

35.   (Original) The method of claim 34, wherein the method further comprises initiating a resume process to resume the apparatus from the operational state suspended in memory, initiating another suspend process, and intervening and preserving another persistent copy of an operational state of the apparatus, before completing said another suspend process and placing the apparatus in the suspended to memory state again, sustained by the supplied backup power.